UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,801	12/01/2003	Joseph E. Schmalz	063718.0330	5545

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NOTIFICATION DATE	DELIVERY MODE
02/08/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

debbie.allen@bakerbotts.com

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 November 2007</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-68</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-68</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____.is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 4, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 20, 21, 23, 25, 28, 30, 31, 32, 33,

35, 36, 37, 38, 39, 43, 44, 46, 47, 50, 52, 53, 54, 55, 57, 58, 59, 60, 61, 65, 66 and 68

are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster et al. (US

6,360,271 B1), hereafter Schuster, in view of Mills (Internet Time Synchronization: The

Network Time Protocol).

3.   Regarding claims 1 and 47, Schuster shows a method of and a system for

adjusting time recordation, comprising:

sending a first message to a first processor that maintains a first time (Fig. 2, col.

9 lines 40 – 44);

sending a second message to a second processor that maintains a second time

(Fig. 2, col. 10 lines 48 – 54 and col. 11 lines 3 – 8);

recording the first time when the first processor receives the first message

(Abstract, lines 2 – 4, col. 10 line 50 – col. 11 line 20) as a first recorded time;

recording the second time when the second processor receives the second

message (Abstract, lines 2 – 4, col. 10 line 50 – col. 11 line 20) as a second recorded

time;

sending a third message from the first processor to the second processor (col. 12

lines 43 – 48);

sending a fourth message from the second processor to the first processor

including information indicative of the second recorded time (col. 12 lines 48 – 64).

Schuster does not show setting the first time of the first processor based at least

in part on the sum of the second recorded time and a roundtrip time for the third and

fourth messages.

Mills shows setting the first time of the first processor based at least in part on

the sum of the second recorded time and a roundtrip time for the third and fourth

messages (Fig. 3 and page 5, Section 3.1).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the disclosure of Schuster with that of Mills in order to utilize the

offset information determined by Schuster to set the clocks to the same time, resulting

in clocks that are fully synchronized without having to utilize said offset for each

comparison.

4.   Regarding claim 25, Schuster in view of Mills further show a computer program,

stored on a tangible storage medium, for adjusting time recordation, the program

including executable instructions that cause one or more computers to:

send a first message to a first processor that maintains a first time (Schuster, Fig.

2, col. 9 lines 40 – 44);

send a second message to a second processor that maintains a second time

(Schuster, Fig. 2, col. 10 lines 48 – 54, col. 11 lines 3 – 8);

record the first time when the first processor receives the first message

(Schuster, Abstract lines 2 – 4) as a first recorded time;

record the second time when the second processor receives the second

message (Schuster, Abstract lines 2 – 4) as a second recorded time;

send a third message from the first processor to the second processor (Schuster,

col. 12 lines 43 – 48);

send a fourth message from the second processor to the first processor including

information indicative of the second recorded time (Schuster, col. 12 lines 48 – 64); and

set the first time of the first processor based at least in part on the sum of the

recorded second time and the roundtrip time for the third and fourth messages (Fig. 3

and page 5, Section 3.1).

5.   Regarding claim 13, 36 and 58, Schuster in view of Mills further show a method

of, a computer program, stored on a tangible storage medium for, and a system for

adjusting time recordation, comprising:

sending a first message to a first processor that maintains a first time (Schuster ,

Fig. 2, col. 9 lines 40 – 44);

sending a second message to a second processor that maintains a second time

(Schuster, Fig. 2, col. 10 lines 48 – 54, col. 11 lines 3 - 8);

recording the first time when the first processor receives the first message

(Schuster, Abstract lines 2 – 4, col. 10 line 50 – col. 11 line 20) as a first recorded time;

recording the second time when the second processor receives the second

message (Schuster, Abstract lines 2 – 4, col. 10 line 50 – col. 11 line 20) as a second

recorded time;

sending a third message from the second processor to the first processor

including data based at least in part on the second recorded time (Schuster, col. 5 lines

25 – 38, col. 7 lines 32 – 45); and

adjusting the first time based on a correction that is based at least in part on the

data and the recorded first time (Mills, Fig. 3 and page 5, Section 3.1).

6.   Regarding claims 4, 16, 28, 39, 50 and 61, Schuster in view of Mills do not show

where sending a first message to a first processor that maintains a first time and

sending a second message to a second processor that maintains a second time are

separated by a predictable amount of time.

Logical reasoning dictates that the first and second messages would be

separated by a predictable amount of time, specifically within the range of the 0

seconds (instantly) to the time which the system implementing the invention ceases to

function.

The combination of Schuster in view of Mills thus teaches where sending a first

message to a first processor that maintains a first time and sending a second message

to a second processor that maintains a second time are separated by a predictable

amount of time.

7.   Regarding claims 6, 30 and 52, Schuster in view of Mills further show

sending a fifth message to the first processor (Schuster , Fig. 2, col. 9 lines 40 –

44);

sending a sixth message to the second processor (Schuster, Fig. 2, col. 10 lines

48 – 54, col. 11 lines 3 - 8);

recording the first time when the first processor receives the fifth message

(Schuster, Abstract lines 2 – 4, col. 10 line 50 – col. 11 line 20) as a third recorded time;

recording the second time when the second processor receives the sixth

message (Schuster, Abstract lines 2 – 4, col. 10 line 50 – col. 11 line 20) as a fourth

recorded time;

sending a seventh message from the first processor to the second processor

including information indicative of the third recorded time (Schuster, col. 5 lines 25 – 38,

col. 7 lines 32 – 45) and

sending an eighth message from the second processor to the first processor

including a correction based at least in part at least in part on the recorded third and

fourth times (Mills, Fig. 3 and page 5, Section 3.1) as said steps are essentially a

repetition of the method/system synchronizations steps of claims 1, 47 and 25, where

Mills specifies repeating synchronizing steps in Section 3.5 paragraph 2 and 3.6

paragraph 5 to maintain/improve clock synchronization and accuracy.

8.   Regarding claims 7, 31 and 53 Schuster in view of Mills further show

sending a fifth message to the first processor (Schuster , Fig. 2, col. 9 lines 40 –

44);

sending a sixth message to the second processor (Schuster, Fig. 2, col. 10 lines

48 – 54, col. 11 lines 3 - 8);

recording the first time when the first processor receives the fifth message

(Schuster, Abstract lines 2 – 4) as a third recorded time;

recording the second time when the second processor receives the sixth

message (Schuster, Abstract lines 2 – 4) as a fourth recorded time;

sending a seventh message from the first processor to the second processor

including information indicative of the third recorded time (Schuster, col. 5 lines 25 – 38,

col. 7 lines 32 – 45);

sending an eighth message from the second processor to the first processor

including information indicative of the fourth recorded time ((Mills, Fig. 3 and page 5,

Section 3.1) as said steps are essentially a repetition of the method/system

synchronizations steps of claims 1, 47 and 25, where Mills specifies repeating

synchronizing steps in Section 3.5 paragraph 2 and 3.6 paragraph 5 to

maintain/improve clock synchronization and accuracy); and

calculating a correction based at least in part at least in part on the third and

fourth recorded times (Schuster, col. 13 lines 5 – 22).

9.   Regarding claims 8, 20, 32, 43, 54 and 65 Schuster in view of Mills further show

applying the correction to the first time a plurality of times at a regular interval (Mills,

Section 3.5 paragraph 2 and 3.6 paragraph 5).

10.   Regarding claims 9, 21, 33, 44, 55, and 66, Schuster in view of Mills further show

where the first processor is located remotely from the second processor (Schuster, Fig.

2).

11.   Regarding claims 11, 23, 35, 46, 57, and 68, Schuster in view of Mills further

show where the first processor is coupled by a network to a plurality of tools that send

time-based measurements to the second processor (Schuster, Figs. 1 and 2, col. 6 line

40 – col. 7 line 2).

12.   Regarding claim 12, Schuster in view of Mills further show where the roundtrip

time for the third and fourth messages is an amount of time from the sending of the third

message to the receipt of the fourth message (Mills, Fig. 3 and page 5 Section 3.1).

13.   Regarding claims 14, 37 and 59, Schuster in view of Mills further show where the

data is the second recorded time (Schuster, col. 12 lines 48 – 64).

14.   Regarding claims 15, 38 and 60, Schuster in view of Mills further show where the

data is equal to the correction (Schuster, col. 13 lines 20 – 35).

15.   Claims 2, 3, 18, 19, 26, 27, 41, 42, 48, 49, 63 and 64 rejected under 35

U.S.C. 103(a) as being unpatentable over Schuster in view of Mills as applied to claims

1, 13, 25, 36, 47, and 58 above, and further in view of Topfl et al. (US 2004/0128350

A1), hereafter Topfl.

16.   Regarding claims 2, 18, 26, 41, 48 and 63, Schuster in view of Mills show claims

1, 13, 25, 36, 47, and 58, including where the first and second processors are coupled

(Schuster, Fig. 2).

Schuster in view of Mills do not show where they are coupled by an asymmetric communication medium.

Topfl shows where computers and the processors inherently within those computers can be coupled by an asymmetric communication medium ([0030]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Schuster in view of Mills with that of Topfl in order to support and utilize a common method for computer communication.

17.   Regarding claims 3, 19, 27, 42, 49 and 64, Schuster in view of Mills and Toplf further show where the first processor and second processor are coupled by an asymmetric digital subscriber line (Schuster, Fig. 2; Topfl, [0030]).

18.   Claims 5, 17, 29, 40, 51 and 62 rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster in view of Mills as applied to claims 1, 13, 25, 36, 47, and 58 above, and further in view of Krause et al. (US 7,171,484 B1), hereafter Krause.

19.   Regarding claims 5, 17, 29, 51 and 62, Schuster in view of Mills show claims 1, 13, 25, 36, 47, and 58.

Schuster in view of Mills do not show where the third message includes an identification of the first message and further comprising: upon receipt of the third message, matching the identification of the first message with an identification of the second message.

Krause shows utilizing identifiers in messages and comparing the message identifiers, matching them to ensure they are sequential, to maintain system integrity and to ensure messages are delivered or combined in the correct order, and as a

method of message error checking (col. 8 lines 51 – 64, col. 22 lines 34 – 37, col. 24 lines 38 – 45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Schuster in view of Mills with that of Krause in order to utilize error and integrity checking for the transmitted messages, improving system reliability.

The combination of Schuster in view of Mills and Krause thus teaches where the third message includes an identification of the first message and further comprising: upon receipt of the third message, matching the identification of the first message with an identification of the second message.

20.   Regarding claim 40, Schuster in view of Mills and Krause teaches where the third message includes an identification of the second message and further including executable instructions that cause one or more computers to: upon receipt of the third message, match an identification of the first message with the identification of the second message (Krause, (col. 8 lines 51 – 64, col. 22 lines 34 – 37, col. 24 lines 38 – 45).

21.   Claims 10, 22, 34, 45, 56, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster in view of Mills as applied to claims 1, 13, 25, 36, 47, and 58 above, and further in view of Shah et al. (US 6,400,646 B1), hereafter Shah.

22.   Regarding claims 10, 22, 34, 45, 56, and 67, Schuster in view of Mills show claims 1, 13, 25, 36, 47, and 58.

Schuster in view of Mills do not show where the first processor is located in a wellbore and the second processor is located at the surface.

Shah shows where the first processor is located in a wellbore and the second processor is located at the surface (Abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Schuster in view of Mills with that of Shah in order to provide for time synchronization in an environment where synchronization is very important (Shah, Abstract).

23. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster in view of Mills as applied to claim 13 above, and further in view of Cognet et al. (US 7,080,160 B2), hereafter Cognet.

Schuster in view of Mills show claim 13.

Schuster in view of Mills do not show where adjusting the first time includes moving the first time forward or backward by an amount and, after a predetermined time, moving it forward or backward by the same amount again.

Cognet shows amortizing time adjustments over an interval (col. 2 lines 17 – 37), thus teaching where adjusting the first time includes moving the first time forward or backward by an amount and, after a predetermined time, moving it forward or backward by the same amount again.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Schuster in view of Mills with that of Cognet in order avoid having to perform all time adjustments instantly, thus spreading out any

changes that could result from clock changes over a longer period of time, resulting in a

smoother, less sudden adjustment.

Response to Arguments

1.   Applicant's arguments filed 11/28/2007 have been fully considered but they are

not persuasive.

2.   Applicant beings by arguing the rejections made under 35 USC 103, Shuster in

view of Mills. Applicant first argues that 'it would be incompatible with Schuster to

modify the timing of the clocks, because those clocks are synchronized already.'

However, regardless of a degree of synchronization that may occur in some of the

embodiments in Schuster's disclosure, Schuster describes a system that utilizes

transmission delay calculations and offsets, requiring frequent data comparisons, to

ensure accurate timings. The disclosure of Mills is devoted provides superior

synchronization techniques with proven reliability and accuracy (Mills, Abstract).

Applicant's argument thus is not persuasive.

3.   Applicant also argues that 'modifying the clocks . . . would make Schuster's

changes in jitter buffer size unreliable.' However, Applicant does not provide support for

this assertion. Furthermore, neither Mills nor Schuster were cited to teach jitter buffer

size accuracy. Additionally, the timing methods of Mills have an extensive record of

accuracy, and have been largely deployed on a variety of systems successfully (Mills,

Abstract); a mere assertion of incompatibly is not persuasive. For at least these

reasons, Applicant's argument thus is not persuasive.

4.   Applicant continues by arguing that 'nothing in Schuster indicates that the time

when the time signal is received is recorded'. However, Schuster describes on col. 10

lines 50 – 65 and col. 11 lines 3 – 30, working with received time values utilizing

computer calculations. When computers perform calculations and other data

comparisons, such as the ones described by Schuster, the data must be recorded in

order to be utilized computationally. It is thus inherent that the arrival times be recorded,

whether in CPU cache, RAM, on a hard disk, etc., for said arrival times to be used in

any computer computation or comparison. Furthermore, the Mills reference utilized to

modify Schuster clearly shows utilizing time stamps for arrival times (pg. 5). For at least

these reasons, Applicant's arguments are not persuasive.

5:     Applicant continues by arguing that the other rejections are invalid as they rely on

rejections made in under 35 USC 103, Schuster in view of Mills. Since Applicant's

arguments relating to Schuster in view of Mills were not persuasive, this argument is

similarly not persuasive.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Frink whose telephone number is (571) 272-9686. The examiner can normally be reached on M-F 7:30AM - 5:00PM EST; off alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571)272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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